



## Your Mineral and Materials Solutions Partner

GET TO KNOW US



# Product Portfolio | Coatings

Covia's functional fillers are utilized around the globe for enhanced performance in decorative and industrial primers and topcoats, OEM, adhesives and sealants, artist colors and many more applications. Covia's vision is to supply the best materials with the best logistics for sustainable, functional engineered materials.

## Brands

**MINEX**<sup>®</sup>

Functional Filler

Nepheline Syenite

**IMSiL**<sup>®</sup>

Microcrystalline Silica

Microcrystalline Silica

**GRANUSiL**<sup>®</sup>

High-Performance Industrial Silica

Silica Sand

**HiFill**<sup>™</sup>

Calcium Carbonate Filler

Calcium Carbonate

**SnoBrite**<sup>™</sup>

Air Floated Kaolin

Kaolin

**HiWhite**<sup>™</sup>

Natural Ground Barium Sulfate

Barium Sulfate



# New for 2022! | Coatings

**MINEX<sup>®</sup> ST**  
Functional Filler



Surface Treated Nepheline Syenite

## MINEX<sup>®</sup> ST

Surface Treated Nepheline Syenite

TECHNICAL DATA SHEET

Umic, IL #010

### FEATURES & BENEFITS

MINEX<sup>®</sup> ST micronized functional fillers and extenders are proven performance enhancers in a broad range of paints, coatings, adhesives, sealants, and inks. Selected surface treatments were developed to further enhance chemical and stain resistance, washability, adhesion, weatherability, optical clarity, color retention in linac systems, abrasion resistance and tensile strength by compatibilization of the mineral surface with the host binder systems and reactive chemistry.

MINEX ST grades are evenly dispersed in a wide range of advanced resin systems from industrial primers and topcoats to aerospace, automotive, marine, plus the next generation paint/primer interior and exterior architectural systems for ultimate performance.

MINEX and MINEX ST functional fillers are produced from nepheline syenite, a naturally occurring, silica deficient, sodium-potassium alumina silicate. Automated scanning electron microscopy confirms they contain less than one-tenth of one percent crystalline silica. No free crystalline silica is detectable in the mineral complex. All MINEX ST grades are processed and sized with rigid adherence to Covia's QIP<sup>SM</sup> quality assurance programs. Consistently uniform chemistries, size distributions, and top size controls ensure reliable performance.

### PARTICLE SIZE ANALYSIS

Typical Mean Values. These Do Not Represent a Specification

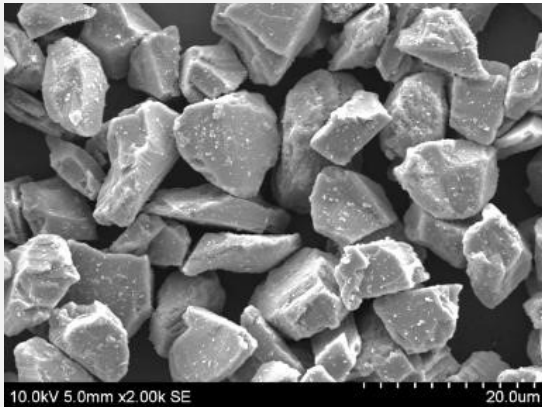
	MINEX <sup>®</sup> ST Grade	
	Microns	4-A150-10
% Finer (Ret. 200µ)	75	100
	45	99.9
	20	91.5
	15	85.2
	10	52.5
	5	34.5
Median Particle Size	Surfgraph	76

### PHYSICAL PROPERTIES

Typical Mean Values. These Do Not Represent a Specification

Property Value	ASTM D210-79	4.6
Specific Surface Area (m <sup>2</sup> /g)	n/a	2.2
Brightness	Tappi	88.3
Moisture %	ASTM C-566	11
Oil Absorption	ASTM D-281	30
pH	APS 10-87-5	10.2
Weight Per Solid Gallon (lbs.)	ASTM D-153	21.7
Bulking Value	ASTM C-29	0.0429
Refractive Index	ASTM D-901	1.51-1.53
Specific Resistance (ohm-cm)	ASTM D-2448	3000
Hardness	Moh's Scale	6.0

# MINEX<sup>®</sup> ST | Product Overview



- ▶ Surface Treated Minex 4 to functionalize surface with a wide range of higher performance coatings and resin systems
- ▶ Can be dispersed in waterborne self-cross linking resin systems.
- ▶ Same optics, handling, sheen control, color acceptance as MINEX.
- ▶ Step additions increase in physical and mechanical properties not available with conventional silicates.
- ▶ Designed for increased scrub, burnish and stain removal properties in paint and primer interior resin systems, but not limited to one application.

# MINEX<sup>®</sup> ST 4 | Technical Data Comparison

		MINEX 4	MINEX ST 4 A150-10	MINEX ST 4 A200-10
Chemistry Fe <sub>2</sub> O <sub>3</sub>	%	0.092	0.091	0.091
200-Mesh	%	< 0.01	0.03	0.02
325-Mesh	%	0.05	0.08	0.07
Median PS – Sedigraph	micron	8.6	8.6	8.7
Color L*		95.13	94.98	95.04
a*		0.02	0.04	0.04
b*		1.40	1.42	1.42
Hegman	NS	<b>4.8</b>	<b>4.8</b>	<b>5.0</b>
pH		10.4	10.3	10.2
Moisture	%	0.08	0.05	0.08
Oil Absorption	mL	24.4	22.4	21.4
Brightness	tappi	86.2	85.8	85.9

**MINEX ST 4 grades match MINEX 4 in Particle size and Physical Properties. Hegman dispersions show it disperses similarly with normal shear.**

# MINEX<sup>®</sup> ST 4 | Premium DIY Interior Test Formula

## Interior Stain Resistant Flat Formulation – 4750-0011 -35.5% PVC

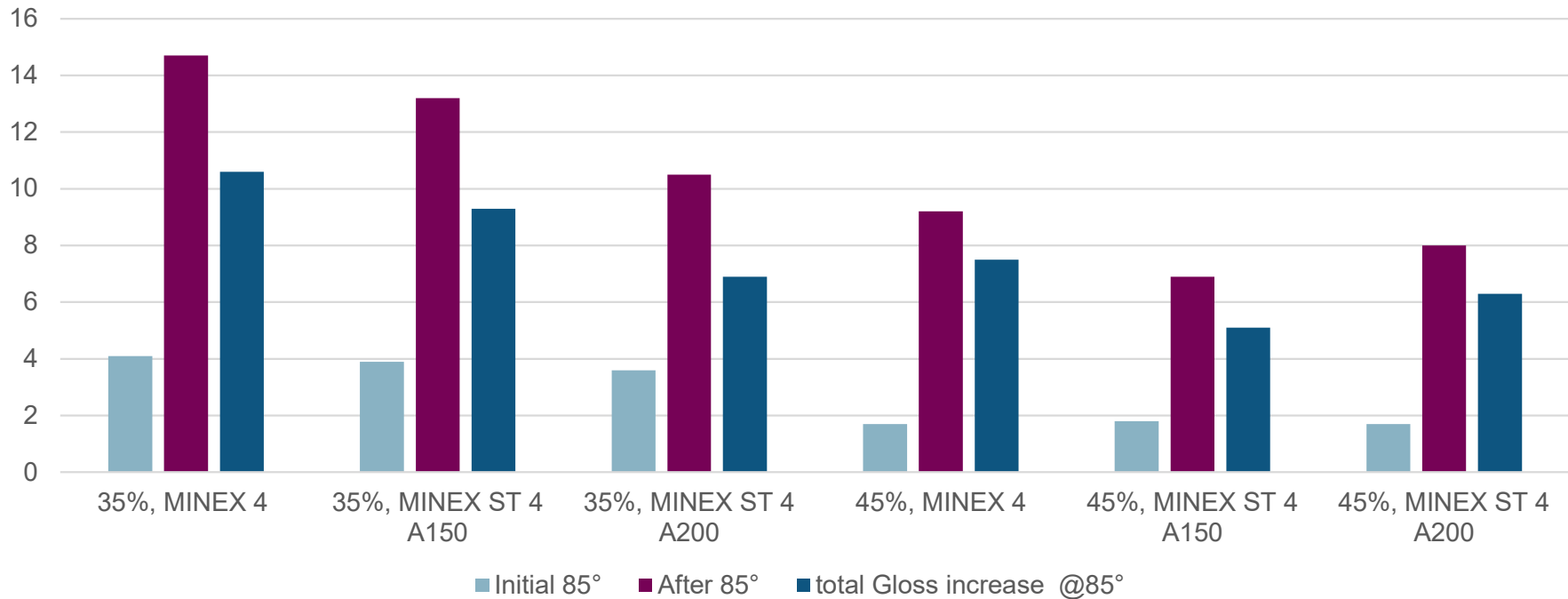
Raw materials	Lbs	Gallons
Water	125	15.01
Natrosol™ 250 HBR	0.5	0.05
AMP-95™	1	0.13
Tamol® 165A	8	0.91
FoamStar® ST 2412	2	0.29
Acticide® BW 20	4.6	0.5
Ti-Pure® R-706	175	5.24
<b>MINEX® 4 or ST 4</b>	125	5.75
ASP® NC X-1	25	1.16
Celite® 281	15	0.78
Attagel® 50	2	0.1
<b>Grind for 10 – 15 minutes, add:</b>		
Water	146.6	18.08
FoamStar® ST 2420	2	0.28
Acronal EDGE 4750	425	48.08
Texanol™	14	1.77
Rheovis® PU 1341	16	1.83
Rheovis® PU 1251	1.3	0.15
Acticide® MKW2	4	0.41
<b>Total</b>	<b>1092</b>	<b>100</b>
<u>Theoretical</u>		
<b>wt in lbs/gal</b>	10.92	
<b>Viscosity (KU)</b>	100 – 110	
<b>Viscosity (ICI)</b>	1.0 – 1.5	
<b>Weight Solids (%)</b>	51.93	
<b>Volume Solids (%)</b>	36.58	
<b>PVC (%)</b>	<b>35.52</b>	
<b>VOC (g/L)</b>	44	

## Interior Stain Resistant Flat Formulation – 45% PVC

Raw materials	Lbs	Gallons
Water	125	15.01
Natrosol™ 250 HBR	0.5	0.05
AMP-95™	1	0.13
Tamol® 165A	8	0.91
FoamStar® ST 2412	2	0.28
Acticide® BW 20	4.6	0.48
Ti-Pure® R-706	175	5.25
<b>MINEX® 4 or ST 4</b>	235	10.81
ASP® NC X-1	25	1.13
Celite® 281	15	0.76
Attagel® 50	2	0.10
<b>Grind for 10 – 15 minutes, add:</b>		
Water	146.6	17.60
FoamStar® ST 2420	2	0.28
Acronal EDGE 4750	380	43.04
Texanol™	14	1.77
Rheovis® PU 1341	16	1.83
Rheovis® PU 1251	1.3	0.15
Acticide® MKW2	4	0.45
<b>Total</b>	<b>1157</b>	<b>100.02</b>
<u>Theoretical</u>		
<b>wt in lbs/gal</b>	11.57	
<b>Viscosity (KU)</b>	100 – 110	
<b>Viscosity (ICI)</b>	1.0 – 1.5	
<b>Gloss @ 20° (Units)</b>	0 – 5	
<b>Gloss @ 60° (Units)</b>	0 – 5	
<b>PVC (%)</b>	<b>45.34</b>	
<b>VOC (g/L)</b>	44	

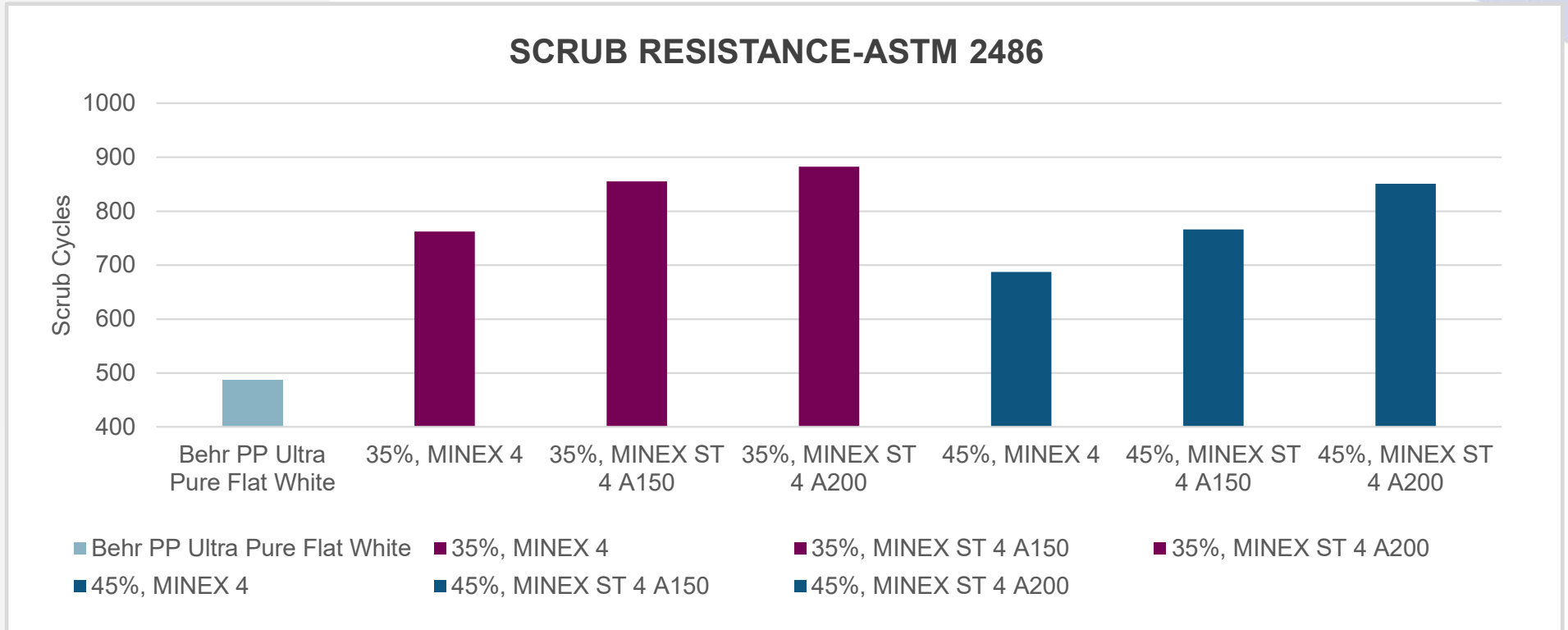
# MINEX<sup>®</sup> ST 4 | Burnish Resistance

GLOSS BEFORE AND AFTER 200 ABRASIVE SCRUB CYCLES

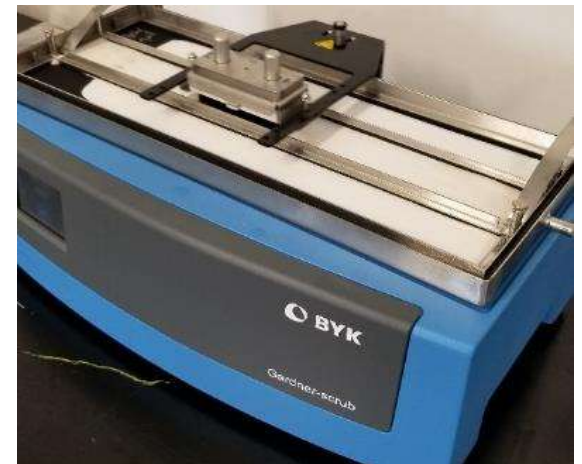


Burnish resistance improved for MINEX ST 4 at both 35 and 45% PVC.

# MINEX<sup>®</sup> ST 4 | Scrub Resistance



**MINEX ST 4 treated grades significantly enhance key interior durability properties. The surface treatment is designed to bond with the resin enhancing scrub 15-20%.**





# MINEX<sup>®</sup> ST 4 | Stain and Washability

## STAINS AND WASHABILITY ASTM D4828-20

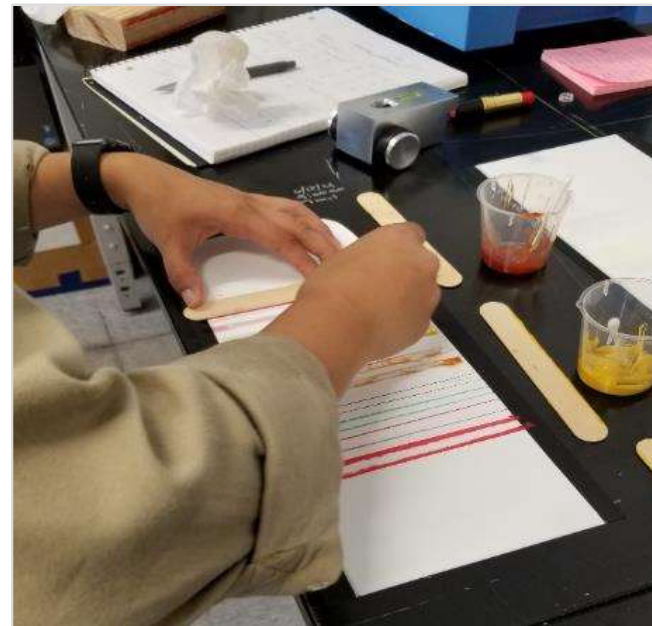
### Hydrophilic

- ▶ Starbucks Dark French Roast
- ▶ Welch's Grape juice
- ▶ French's yellow mustard
- ▶ Hunts Ketchup



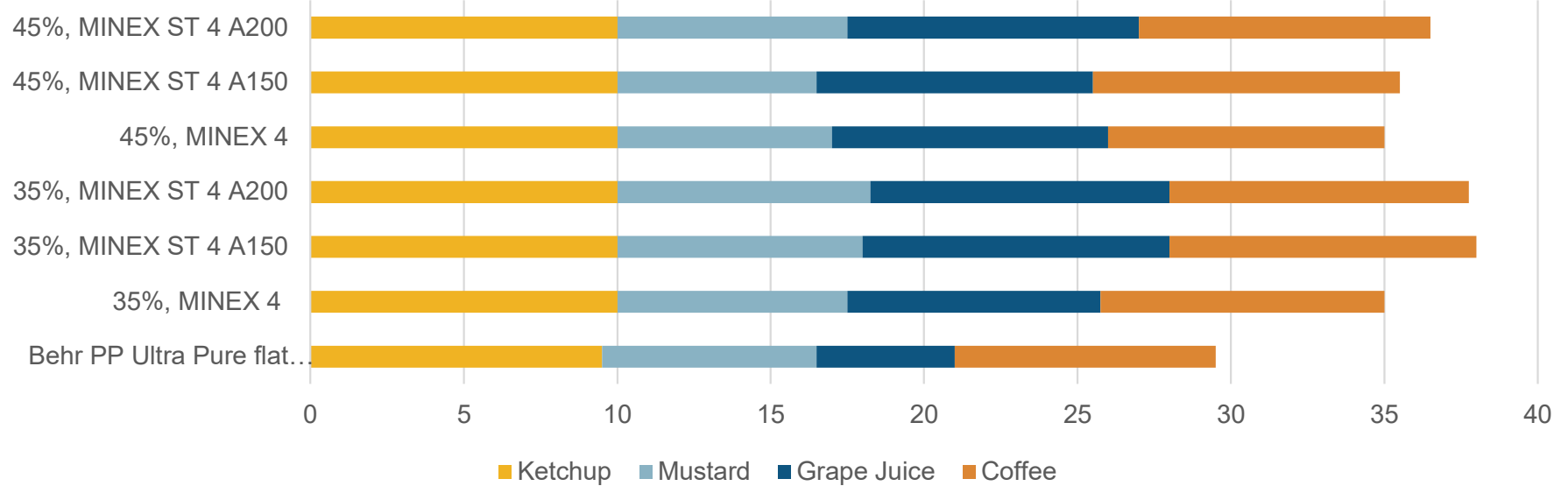
### Hydrophobic

- ▶ Revlon Lipstick
- ▶ China red marker
- ▶ #2 pencil
- ▶ Crayola green crayon



# MINEX<sup>®</sup> ST 4 | Stain Resistance / Washability

## HYDROPHILIC STAIN RESISTANCE-AST M D8428-20

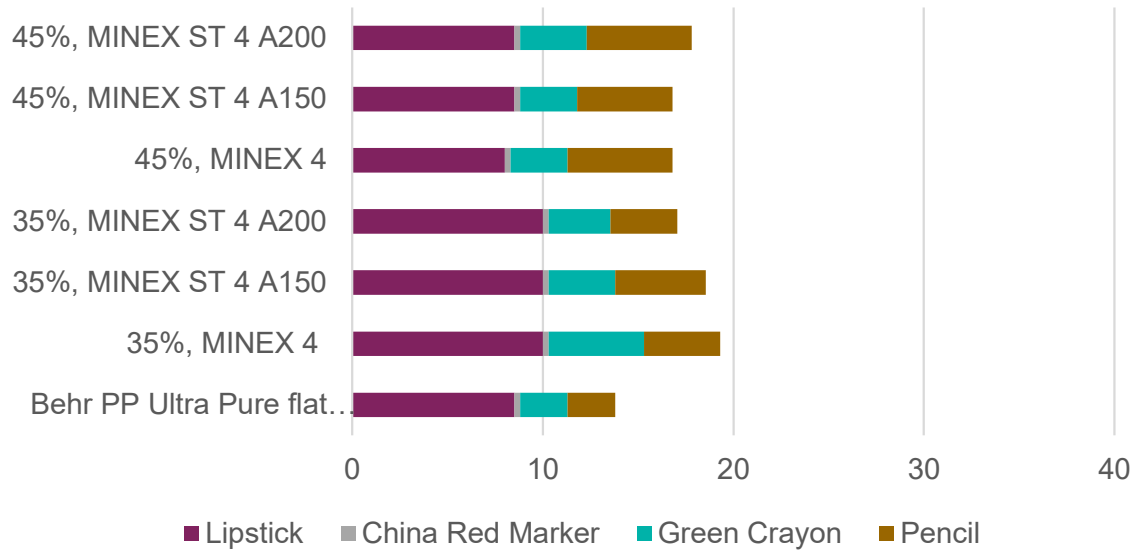


Formula was already considered 10 out of 10 for both hydrophobic and hydrophilic stain resistance. MINEX ST 4 further improves hydrophilic, particularly grape juice and mustard at 35% PVC.



# MINEX<sup>®</sup> ST 4 | Stain Resistance

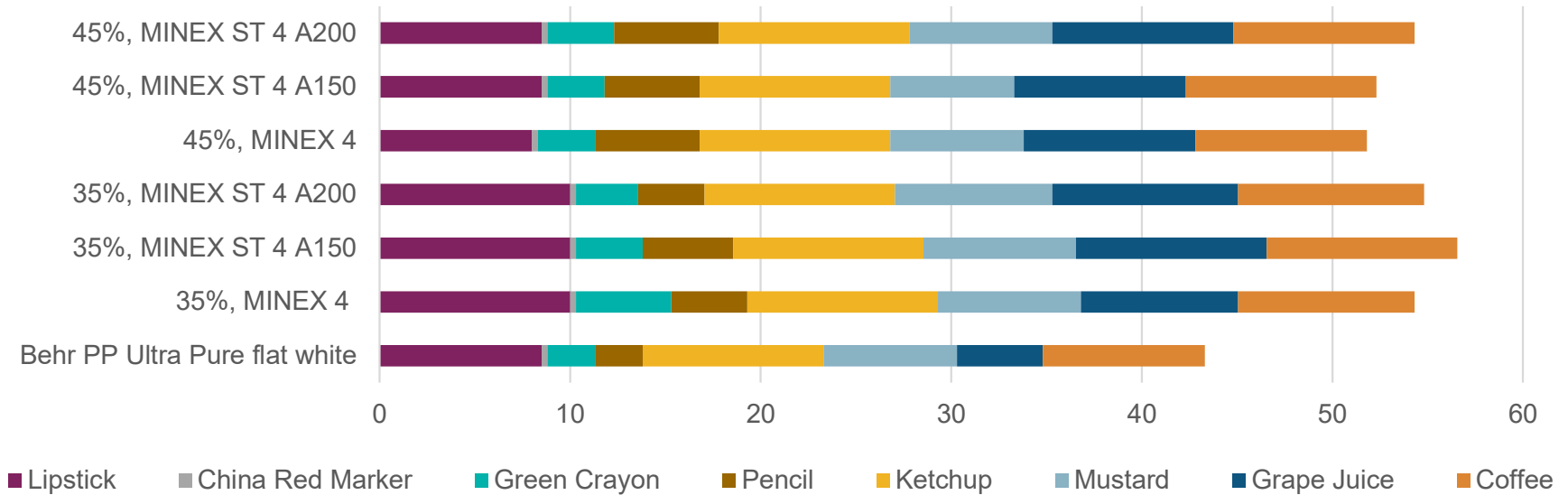
## HYDROPHOBIC STAINS-ASTM D8428-20



**No significant differences. MINEX 4 has good hydrophobic stain resistance already. Lower PVC stain resistance were slightly better and perfect for lipstick.**

# MINEX<sup>®</sup> ST 4 | Stain Resistance

## OVERALL - COMBINED STAIN RESISTANCE



**MINEX ST 4 further improves overall combined hydrophilic and hydrophobic stain resistance.**



## **PAINT AND COATINGS**

- ▶ **MINEX ST treatments are compatible with an increasing number of waterborne resin offering “self-cross linking” technology.**
- ▶ **MINEX ST 4 grades are drop-ins for MINEX 4 in appearance.**
- ▶ **Increases overall hydrophilic/hydrophobic stain washability, particularly resistance to grape juice and mustard.**
- ▶ **Significantly increase the overall mechanical properties, particularly Burnish and Scrub.**
- ▶ **MINEX ST could be used to increase the % PVC for cost saving dependent on resin cost, maintaining premium performance.**
- ▶ **MINEX ST technology can be applied to any MINEX grades.**

**Covia is a market leader in surface treatment and blending aggregates for industrial applications. Now bringing expertise to fine powders for coating producers**